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ABSTRACT

Alcohol on college campuses is not a new problem, but recent concerns have centered on heavy episodic drinking, binge drinking. To address these concerns, the National Advisory Council on Alcohol Abuse and Alcoholism established two panels of nongovernment experts to help develop a national research agenda. This report represents the work of the Panel on Prevention and Treatment. Through a look at some successful programs, the Panel has identified a number of strategies that colleges and universities can use to reduce student drinking. These include: (1) creating a healthy environment; (2) promoting healthy behaviors through individual- and group-focused approaches; (3) creating comprehensive college-community interventions; and (4) managing program implementation effectively. The Panel also developed recommendations for researchers in the form of study questions to address gaps in the same four action areas suggested for colleges and universities. Recommendations were also developed for the National Institutes of Alcohol Abuse and Alcoholism and other potential program funders and to other interested national organizations. The Panel also developed ideas on managing program implementation effectively,drawing on relevant research. Appendixes contain additional panel recommendations, a theoretical framework for alcohol prevention initiatives, and responses to arguments against the minimum drinking age. (Contains 165 references.) (SLD)

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How To Reduce High-Risk College Drinking:

Use Proven Strategies, Fill Research Gaps

Final Report of the Panel on Prevention and Treatment

ED 469 650

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Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism
National Institutes of Health
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How To Reduce High-Risk College Drinking: Use Proven Strategies, Fill Research Gaps

Final Report of the Panel on Prevention and Treatment

National Institute on Alcohol Abuse and Alcoholism
National Advisory Council
Task Force on College Drinking
April 2002

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EXECUTIVE SUMMARY

"Underage drinking to excess has a negative effect on everything we're trying to do as a university. It compromises the educational environment, the safety of our students (both high-risk drinkers themselves and other students hurt by their actions), the quality of life on campus, town/gown relationships, and our reputation."

Dr. Judith Ramaley, Former President, University of Vermont

"Class scheduling, class attendance, student attrition, student academic performance and the civility of campus life are all negatively affected by excessive student drinking."

Dr. Susan Resneck Pierce, President, University of Puget Sound

"Student safety is of paramount importance, and if we save one life, our [alcohol prevention] program is working."

Dr. William Jenkins, President, Louisiana State University System

"Universities are often afraid to reveal that they have a problem with alcohol, although everyone knows it anyway. But we've seen important benefits from focusing on the problem and taking a tough stand. Applications are up, student quality is up, more students are participating in activities like drama and music, and alumni giving has increased, for example. I know that support for me personally has grown with my reputation for taking strong ethical positions and sticking with them."

Dr. Robert L. Carothers, President, University of Rhode Island

College student drinking to excess is a widespread national problem with serious consequences—and it has been for a long time. Although the factors that have made the problem so intractable are complex, today—based on scientific research results—we have the potential to make real progress in controlling excessive drinking. In fact, a substantial body of research studies now offers direction on how to reduce excessive, underage, and high-risk college drinking. On the basis of this information, colleges and universities, communities, and other interested organizations can take steps toward positive change more confidently. Although significant information gaps remain, the science-based guidance now available means campuses and communities no longer have to "reinvent the wheel" when they try to address the problem. It also enables us to avoid inadvertently perpetuating ineffective programs and approaches.

The availability of science-based guidance is a significant step forward because lack of information about what works and what does not has been a major obstacle to progress. On the research side, high-quality research has addressed only some of the issues of concern to college administrators and the practical implications of research results have not been widely disseminated. On the institutional side, most campus alcohol efforts have not been evaluated, which has hindered the effectiveness of individual campus efforts and slowed the growth of the knowledge base from which all could learn.

Although the research base on college alcohol problems is limited, the panel of college presidents, students, and alcohol research specialists that contributed to this report identified a number of effective strategies that colleges and universities could confidently use today. These include strategies for changing the environment to discourage high-risk drinking, affecting the behavior of individuals and groups, creating comprehensive college-community efforts to combat the problem, and adopting effective approaches for managing program implementation. It is

encouraging that many of these strategies require no new resources, are modest in costs, and can be accomplished by existing staff.

From its review of the scientific literature, the Panel on Prevention and Treatment believes that adopting approaches with demonstrated effectiveness can begin to reduce high-risk college drinking and continue to advance knowledge by filling critical research gaps. The Panel recommends that the action steps and research needs described below receive priority attention from colleges and universities, researchers, the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and other potential funders, communities, and interested organizations.

The Panel recommended more action steps in some areas than in others. This is primarily due to the amount of research available. Except as noted, approaches that have not been included in the recommendations are not necessarily ineffective. Often simply less is known about them. Among the "key research gaps" identified by the Panel is the need for rigorous testing of strategies now considered "promising" based on face value or common sense. As researchers rise to this challenge, the effectiveness of many of these approaches will become known.

What Colleges and Universities Can Do Now

The Panel suggested that colleges and universities take the following steps to create a healthy environment on campus, promote healthy behaviors, develop comprehensive college-community interventions, and implement effective programs.

Creating a Healthy Environment

- Pay careful attention to environmental factors on campus and in the community. They are extremely important in influencing college drinking behaviors both positively and negatively.
- Actively enforce existing age 21 laws on campus; they help decrease alcohol consumption.
- Use social norms interventions to correct misperceptions and change drinking practices. When discussing college drinking problems, do not inadvertently reinforce the notion that hazardous drinking is the norm. Help students understand that they have the right **not** to drink and to have negative feelings about the consequences they experience due to other students' excessive drinking.
- Communicate the institution's, the community's, and the State's alcohol policies to students and parents before and after students arrive on campus.
- Be cautious about making alcohol available on campus. In the general population, increased availability is associated with increased consumption.

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

- Use brief motivational interventions, such as giving feedback on students' personal drinking behavior and negative consequences, comparing individual drinking habits to actual campus norms, and teaching drinking reduction skills. Strong evidence of effectiveness supports these relatively low-cost interventions.
- Increase screening and outreach programs to identify students who could benefit from alcohol-related services.
- Train those who regularly interact with students, such as resident advisors, coaches, peers, and faculty, to identify problems and link students with intervention services and/or provide

brief motivational interventions. This allows colleges and universities to improve services without adding new staff.

- Use educational interventions that provide **new** information such as describing alcohol-related programs and policies, informing students about drinking-and-driving laws, and explaining how to care for peers who show signs of alcohol poisoning. Use alcohol education in concert with other approaches, such as skills training or social norms.
- Avoid using educational efforts focused primarily on facts about alcohol and associated harm as a sole programmatic response to student drinking. They have proven to be ineffective.
- Be inclusive of varied student subpopulations. Determine and address the special needs of groups such as racial/ethnic minorities, women, athletes, "Greeks," students of different ages, and gay and lesbian students.

Creating Comprehensive College-Community Interventions

- Create and/or participate in joint college-community interventions to reduce student drinking problems. Community coalitions have been effective in addressing alcohol and other health issues, although there has been no research on campus-community activities to reduce high-risk drinking and related problems.
- Create a task force or coalition representing relevant constituencies on campus (including students) and in the community (including local businesses) to develop and monitor college drinking initiatives.
- Plan coalition activities strategically, including setting measurable objectives, establishing target timelines, clearly defining member responsibilities, and collecting and evaluating data on both the process of working together and the results of the interaction.

Managing Program Implementation Effectively

- Be critical consumers of alcohol prevention strategies. Use programs with demonstrated effectiveness, such as those recommended in this report.
- Take a strategic, outcome-driven approach to planning that reflects the campus situation and recognizes the need for the alignment of alcohol programs and policies with other aspects of institutional policy. Evaluate policies and programs and share the results with other colleges and universities.
- Recognize that college student drinking prevention programs require a long-term (10- to 15-year) commitment. Set realistic objectives for change that are based on institutional assessment and national experience.
- Establish a system for collecting data regularly on alcohol consumption and related problems. Report information objectively on campus and in the community, and update progress regularly.
- Adopt and integrate complementary approaches, rather than focusing only on one. For example, when combined, social norms and policy enforcement efforts can enhance each other.
- Involve students in developing and implementing activities to reduce high-risk drinking.
- Involve a broad base of campus and community groups in prevention efforts, and reward students and others for supporting these programs.
- Use social marketing approaches to create and market programs to students.

- Encourage presidents, administrators, and other campus leaders to communicate the message that reducing harmful alcohol use is an institutional priority.
- Have alcohol prevention interventions in place before the freshmen arrive in the fall and sponsor related activities frequently during the first weeks of the academic year. Train those who conduct prospective student tours and interviews to explain the institution's alcohol policies and desired norms.
- Help move the field forward. Be willing to participate in alcohol-related research programs, for example, or to become a State or national policy advocate on college drinking issues.

Recommendations to Researchers: Key Research Gaps

The Panel developed recommendations for researchers in the form of study questions to address gaps in the same four action areas suggested above for colleges and universities.

Creating a Healthy Environment

- What is the effect of banning or stringently regulating alcohol on campus? Do problems simply move off campus? How are on- and off-campus cultures affected?
- Are parental notification policies effective? If so, what are the characteristics of effective parental notification programs? At what point should parents be notified for optimal results?
- What is the most effective type of campus disciplinary system for alcohol offenses? Should campus alcohol disciplinary systems and standards be extended to students who live off campus and in what circumstances? Should infractions be handled differently for those under 21 years of age?
- How does the academic environment affect student drinking patterns? For example, would high-risk drinking be reduced if more classes were scheduled on Fridays or academic expectations were increased (e.g., reducing grade inflation, increasing difficulty of classes and requirements)?
- What is the impact of substance-free housing on alcohol problems?
- What approaches effectively reduce alcohol problems within the Greek system? Does the presence of a live-in resident advisor reduce drinking? Does delaying rush reduce alcohol problems? Do risk management efforts make a positive difference?
- What are the key environmental characteristics that influence drinking? How should environmental characteristics and environmental change be measured?
- Do alcohol-free activities and venues reduce college alcohol problems? What factors (e.g., frequency, timing, type, planning) influence effectiveness?
- How are social norms campaigns most effectively used (e.g., in combination with other activities; to set the stage for more comprehensive initiatives)?

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

- What are the campuswide effects of implementing individual- and group-focused interventions?
- How well do these interventions work with different campus populations, including Greeks, incoming students, mandated students, adult children of alcoholics, athletes, students at various risk levels based on current alcohol practices, students living on and off campus, and members of different ethnic, religious, and cultural groups?

- How effective are student-to-student interventions?
- What are the most effective uses of computer-based technologies in college alcohol initiatives?
- Should approaches be tailored to the needs and situations of underage students versus those age 21 and older?
- What are the most effective and cost-effective ways to conduct outreach for alcohol services?
- What criteria are appropriate for diagnosing college student alcohol problems? Do they differ from the general population criteria used in currently available instruments?
- How well do pilot programs work when taken to scale on different campuses?

Creating Comprehensive College-Community Interventions

- Are comprehensive college-community interventions to reduce high-risk college drinking effective? What is the most effective mix of policy and program elements? What are the assets and liabilities for colleges and communities?
- Is it more effective to focus such efforts on drinking practices or on the health and social problems high-risk drinkers cause for themselves and others?
- Where should decision-making responsibility be focused: in city government, the college and university, another group or institution, or a combination of players?
- What are the best strategies for mobilizing and optimizing the effectiveness of campus-community coalitions?
- Do effects of college-focused programs extend to others in the community?
- What is the best way to enforce community alcohol-related ordinances?
- How can the results of alcohol research be effectively disseminated to community audiences such as chiefs of police, parents, and legislators?
- How effective are State-level coalitions that support individual campus-community collaborations?

Managing Program Implementation Effectively

- What planning structure or process is most effective in developing campus alcohol policies and programs?
- What is the relative effectiveness of different accountability structures for managing college alcohol programs?
- What are the costs and effects of alcohol prevention interventions including campus-based and comprehensive campus-community efforts? How can programs be made more cost-effective?
- Which alcohol policies and programs most benefit the college and university in terms of student recruitment, student quality and academic performance, student diversity, student retention, faculty behaviors, fundraising, and alumni relations?
- What are the most effective strategies for involving presidents, administrators, faculty, students, other staff, and boards of directors in alcohol prevention programs?
- Is it effective to make prospective students aware of alcohol policies during the marketing or admissions process?

- What are the most effective ways of engaging, optimizing, and maintaining the involvement of different student subgroups, including ethnic and racial minorities?
- How can higher education and secondary education work together on alcohol issues, including the transition from high school to college?

Recommendations to NIAAA and Other Potential Program Funders

The Panel offered the following recommendations to NIAAA and other program funders:

- Provide direction for the research field through initiatives and publications.
- Consider new initiatives, mechanisms, and procedures to encourage and support needed research that may not conform to a typical National Institutes of Health investigator-initiated research format.
- Provide technical assistance, remove barriers, and offer incentives to facilitate college and university participation in alcohol research studies.
- Increase collaboration with other Federal agencies for joint funding in this field.
- Invest resources in developing a model alcohol-related data collection system for campuses nationwide. Maintain a permanent database of this information.
- Work with the National Highway Traffic Safety Administration to include data indicators needed to quantify college alcohol problems in accident reports. Indicators include whether subjects are enrolled in college, where, and at what level.
- Conduct an annual press briefing to highlight progress made and resources needed to continue addressing college alcohol issues.
- Open dialogue and seek partnerships with national organizations to fulfill the recommendations of this report. Such groups include other Federal agencies, States, the national Interfraternity Council and Pan-Hellenic Council, boards of individual Greek organizations, national student organizations, industry, athletic conferences, high schools, and groups representing college and university presidents, boards of trustees, and administrators. Give such a coalition a reason to interact, such as working together to develop the model for national data collection.
- Create and disseminate short publications to various campus audiences (including students) that synthesize current research findings and identify what the college community can do about the problem.

Recommendations to Other Interested National Organizations

The Panel offered the following recommendations to other national organizations:

- Provide venues (e.g., at annual meetings) for researchers to share information on this issue.
- Encourage colleges and universities to enact policies and programs that research deems effective.
- Help educate the press about campus alcohol issues, including actual levels of college drinking and the progress being made in reducing high-risk behaviors and their consequences.
- Consider ways in which existing jobs and organizational elements could be reconceptualized to include a focus on college alcohol issues.

WHAT IS NEW ABOUT HIGH-RISK COLLEGE DRINKING?

"Most colleges visited saw alcohol abuse as a serious problem on the campus in terms of student drunkenness and the social, physical, and property damage or injury that resulted. Approximately 15% of the schools visited had already become involved in alcohol education or abuse prevention activities but the vast majority were looking for ideas and guidance....Antisocial behavior, which if committed by a sober person would never be tolerated, is readily accepted if the person is drunk. Probably the greatest impediment to action on many campuses is that drunkenness is looked upon as normal."

The Whole College Catalog About Drinking, 1976

College student drunkenness is far from new, and neither are college and university efforts to control it. What is new, however, is the potential to make real progress on this age-old problem, based on scientific research results. New, research-based information about the consequences of high-risk college drinking and how to reduce it can empower colleges and universities, communities, and other interested organizations to take effective action. Although significant information gaps remain, the availability of solid, science-based guidance means we no longer have to reinvent the wheel each time we address the problem—or inadvertently perpetuate programs and approaches that do not make any difference.

Research-Based Rationale for Action: A Widespread Problem With Harmful Consequences

Hazardous drinking among college students is a widespread problem that occurs on campuses of all sizes and geographic locations. A recent survey of college students conducted by the Harvard University School of Public Health reported that 44 percent of respondents had drunk more than five drinks (four for women) consecutively in the previous 2 weeks. About 23 percent had had three or more such episodes during that time (Wechsler et al., 2002).

The reverse implications of these statistics are also important to note. Contrary to the popular misconception that "everybody drinks heavily" in college, the majority of students either abstain or drink moderately. Moreover, alcohol consumption varies by ethnicity. For example, a greater percentage of White and Native American students drink more frequently and more heavily than those from other ethnic backgrounds (Presley et al., 1995, 1996). Black students at predominantly Black or predominantly White colleges consume less alcohol than White students (Meilman et al., 1995). As college and university populations increasingly reflect the significant demographic changes now taking place in the United States, targets and strategies for alcohol efforts may also need modification.

Although high-risk drinkers are a minority in all ethnic groups, their behavior is far from a harmless "rite of passage." In fact, it has pervasive consequences that compel our attention.

The most serious consequence of high-risk college drinking is death. The U.S. Department of Education has evidence that at least 84 college students have died since 1996 because of alcohol poisoning or related injury—and they believe the actual total is higher because of incomplete reporting. When alcohol-related traffic crashes and off-campus injuries are taken into consideration, it is estimated that over 1,400 college students die each year from alcohol-related unintentional injuries. Additionally, over 500,000 full-time students sustain nonfatal unintentional injuries and 600,000 are hit or assaulted by another student who has been drinking (Hingson et al., 2002). Administrators are well aware of the burden alcohol presents to the campus environment. For example, in a recent survey of 330 colleges and

universities (Anderson and Gadaleto, 2001), 60 percent of administrators thought that alcohol played a significant role in violent behavior and damage to residence halls. Fifty-five percent believed it was implicated in damage to other campus property; 40 percent in physical injury; 54 percent in campus policy violations; 36 percent in lack of academic success; and 30 percent in student attrition.

In addition, the 1997, 1999, and 2001 Harvard surveys found that the majority of students living in dorms and Greek residences who do not drink excessively still experience day-to-day problems as a result of other students' misuse of alcohol (Wechsler et al., 1998, 2000, 2002). The prevalence of these "secondhand effects" varies across campuses according to how many students on the campus engage in high-risk drinking. Effects include:

- Interrupted study or sleep (43 to 70 percent);
- Need to care for a drunken student (37 to 57 percent);
- Insults or humiliation (20 to 36 percent);
- Serious arguments or quarrels (14 to 23 percent);
- Unwanted sexual advances (15 to 23 percent);
- Property damage (7 to 16 percent);
- Personal attacks such as pushing, hitting, or assault (6 to 11 percent); and
- Sexual assault or date rape (1 percent).

"When you get down to it," says Dr. Judith Ramaley, former president of the University of Vermont, "underage drinking to excess has a negative effect on everything we're trying to do as a university. It compromises the educational environment, the safety of our students (both high-risk drinkers themselves and other students hurt by their actions), the quality of life on campus, town/gown relationships, and our reputation."

Other college and university presidents on the Panel voice similar concerns. As University of Notre Dame President Edward A. Malloy reflects, "I've lived in college dormitories for much of my adult life, so I know firsthand the impact irresponsible drinking has on the quality of residential life... reducing alcohol-related harm is clearly central to our mission." Dr. Susan Resneck Pierce, president of the University of Puget Sound, mentions alcohol's negative effects on "the civility of campus life," as well as its subversive impact on educational outcomes. "Nationally, excessive student drinking has led to missed classes, poor academic performance, and student attrition. Unfortunately, some campuses have responded to this by no longer scheduling early morning and Friday classes. I believe that these accommodations—along with grade inflation and the failure of some faculty to hold their students accountable for poor academic performance—have contributed to excessive student drinking."

President James E. Lyons, Sr., of California State University at Dominguez Hills, notes that, for his predominantly commuter student population, quality of life is not the issue. "If our students are having problems with alcohol, they go home and punch their own walls, not ours. But we need to identify and refer such students to counseling or treatment, because drinking problems can have an impact on our educational mission." Dr. William Jenkins, former chancellor and current president of the Louisiana State University System, once received that phone call in the middle of the night that every president dreads, telling him that a student had died from an alcohol overdose at a party. He emphasizes, "Student safety is of paramount importance, and if we save one life, our [alcohol prevention] program is working."

"Universities are often afraid to reveal that they have a problem with alcohol, although everyone knows it anyway," says Dr. Robert L. Carothers, president of the University of Rhode Island (URI). "People are also afraid of legal liability issues, which emerging case law suggests are not a problem, and of angering key constituencies. But we've seen important benefits from focusing on the problem [at URI] and taking a tough stand. Applications are up, student quality is up, more students are participating in activities like drama and music, and alumni giving has increased, for example. It's become clear to me that people are hungry for strong statements about values. I know that support for me personally has grown with my reputation for taking strong ethical positions and sticking with them."

Current State of Practice

Prevention work in public health is often guided by a social ecological framework. This approach recognizes that any health-related behavior, including college student drinking, is affected by multiple levels of influence such as intrapersonal (individual) factors, interpersonal (group) processes, institutional factors, community factors, and public policies (DeJong and Langford, 2002; Stokols, 1996). Health promotion research shows that a strategically planned approach with a range of interventions directed at multiple levels of influence increases the likelihood of success. Appendix 2, "Typology: A Theoretical Framework for Alcohol Prevention Initiatives," provides an example of the varied types of strategies and activities that can be combined to provide multiple sources of support for reducing high-risk drinking.

Absence of a Comprehensive Approach

On most campuses, however, prevention efforts have concentrated on affecting the individual and group levels, with some attention paid to the institutional level. Less attention has been paid to factors in the local community that affect student alcohol use, and calls by campus officials for changes in State or Federal policy remain rare (DeJong and Langford, 2002).

Institutions have most often employed interventions intended to change knowledge, attitudes, and behavioral intentions; few take a comprehensive approach (Larimer and Cronce, 2002). A recent survey of college and university administrators found that most institutions have not yet put in place the basic infrastructure needed to develop, implement, or evaluate a comprehensive approach (DeJong and Langford, 2002). For example, almost all respondents (97.6 percent) to the Higher Education Center Survey of College Administrators reported that their school's orientation program for new students presents information about alcohol and other drug policies and programs. However, educating students by infusing alcohol-related topics into the general curriculum was much less in evidence (Higher Education Center, 1998); and, apart from some special focus on freshmen, Greek-affiliated students, and athletes, most schools did not usually tailor efforts for different student groups (Anderson and Gadaleto, 2001). Although some schools ban alcohol advertising from the school newspaper, the 1997 College Alcohol Survey found that 75 percent of responding institutions allow newspaper alcohol ads, as do 40 percent of campus radio stations (Anderson and Gadaleto, 2001). Very few schools have changed their academic calendars in an effort to change the alcohol culture by scheduling more early morning classes, regularly scheduling exams on Fridays to reduce the Thursday "party night" mentality, shortening the time between final exams and graduation, or eliminating Spring Break (Higher Education Center, 1998).

Controls on Alcohol Availability

Surveys differ on the extent of control institutions say they exercise over alcohol availability. For example, over half of responding institutions in the Higher Education Center survey reported offering substance-free social events, and 83 percent said they had student housing where alcohol use is banned at all times. Nearly three-fourths said they had programs in place to control alcohol availability (Higher Education Center, 1998). In contrast, the 1997 College Alcohol Survey found that less than one-third of schools had some or all alcohol-free residence halls. Nearly half said there were places on campus where

individuals can purchase alcohol by the drink, and drinking beer and hard liquor is permitted on two-thirds or more campuses (Anderson and Gadaleto, 2001).

Program Evaluation

In the 1997 College Alcohol Survey more than half of respondents reported having a task force or partnership with the surrounding community to address alcohol-related concerns, but only 39 percent had conducted a formal assessment of the effectiveness of their alcohol effort (Anderson and Gadaleto, 2001). In the Higher Education Center survey only 19.8 percent reported formal evaluations (Higher Education Center, 1998).

Overall, the extent of alcohol-related initiatives on campus does not appear to have changed through the mid-1990s. In a 1998 Survey of College Administrators conducted by the Higher Education Center, fully 81.1 percent of the respondents reported that "hard money" (non-grant) funding for their school's alcohol and other drug prevention programs had remained the same during the past 3 years (Higher Education Center, 1998; DeJong and Langford, 2002). In a separate survey of administrators conducted in 2000, 89 percent reported "great or some increase" in the "extent of alcohol education and prevention efforts on their campus compared with several years ago," but increased funding did not appear to accompany the reported increase in level of effort (Anderson and Gadaleto, 2001). Although surveys over time have found some modest progress at some institutions, overall, the outlook has changed little since 1975.

Identifying Research-Based Opportunities for Progress

In reviewing the literature to develop this report, the Panel found a significant number of individual- and group-focused, environmental, comprehensive college-community, and program implementation strategies that college presidents and administrators could use confidently today. Many of them require no new resources and only modest costs.

The Panel also identified a number of gaps in both information and the research infrastructure. Lack of information about what works has been a major obstacle to progress. On the research side, high-quality work has addressed relatively few of the issues that concern college administrators, and results have not been widely disseminated. On the institutional side, campus alcohol efforts are rarely subject to rigorous evaluation. This has hindered the effectiveness of individual campus efforts and limited the knowledge available from which to learn.

This report is designed to help colleges and universities and researchers apply the knowledge that currently exists and to advance understanding about effective strategies for intervening with alcohol problems on campus. It provides background on the theoretical framework of college drinking interventions and the current state of practice today. It offers recommendations to colleges and universities about steps to take now and synthesizes the research that led to these recommendations. A section on key research gaps identifies the most salient research questions that alcohol investigators need to address. Appendix 1 lists additional research recommendations as well as the Panel's recommendations to NIAAA and other organizations interested in supporting alcohol research.

Developing This Report: The Panel and the Process

In 1998, the National Advisory Council to the National Institute on Alcohol Abuse and Alcoholism (NIAAA) established the Task Force on College Drinking to contribute to the development of a national plan for college drinking research at NIAAA. The Task Force created two working panels: the Panel on Contexts and Consequences and the Panel on Prevention and Treatment. College and university presidents, students, and experts on college drinking research participated in both panels. Each panel commissioned a series of background papers that reviewed the literature in their areas of focus. A number of those papers are being published in a supplement to the *Journal of Studies on Alcohol.* A full list of the authors and papers commissioned by the Panel on Prevention and Treatment appears in the References section of this report.

The Task Force has also issued a report, *A Call to Action: Changing the Culture of Drinking at U.S. Colleges,* that synthesizes the two panels' documents and their recommendations. Other products include a series of booklets for college presidents, peer educators, parents, high school guidance counselors, and community leaders, highlighting information of special importance to them, and a handbook for college administrators on implementing effective prevention programs on campus. For more information, contact: National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, 6000 Executive Boulevard, Willco Building, Bethesda, MD 20892-7003; www.niaaa.nih.gov.

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RESEARCH-BASED RECOMMENDATIONS: WHAT COLLEGES CAN DO NOW; FILLING KEY RESEARCH GAPS

The reviews of existing research commissioned by the Panel found a substantial number of approaches with moderate to significant evidence of effectiveness. They also found a few strategies that were clearly ineffective. For the most part, the approaches identified targeted:

- The environment,
- Students as individuals or by specific group (e.g., women, members of sororities or fraternities, athletes),
- Colleges and their surrounding communities as a whole, and
- Issues affecting the implementation of prevention programs aimed at reducing high-risk drinking and its consequences.

Methodology and Caveats

The Panel considered several issues related to the quantity and quality of studies used in evaluating the research literature. They provide an important context for the results reported here and include:

- ***Number of available studies.*** The quantity of studies available—and deemed of sufficient quality for inclusion—differed substantially among topics. For example, many more studies have been conducted on individual-focused interventions and the minimum drinking age laws than on most environmental activities, policies, and comprehensive community interventions. When interpreting the recommendations that follow, it is important to understand that approaches with fewer proven strategies are not necessarily less effective overall; there simply may be less known about them.
- ***Research design.*** Authors of commissioned papers adopted different criteria for including studies in their literature reviews depending on the research base available in their topic areas. All looked for high-quality, controlled trials with randomized, representative samples that were not based solely on self-report. However, this type of research design was not always available—and, in some cases, almost never available. Individual papers describe the research consulted and criteria for inclusion in detail. Some reviews included unpublished material to capture recent trends because that information can be slow to appear in the traditional literature. Where feasible, authors weighted studies based on methodological strength in developing their conclusions. The confidence level from one methodologically sound trial could outweigh the findings and conclusions from several weaker studies.
- ***Lack of college-specific studies.*** In many cases, only general population studies or research on college-age individuals was available. As a result, effectiveness in campus situations was unknown. Where appropriate, approaches proven effective in a broader population including college students are included in the recommendations. In the absence of more specific studies, they may provide useful direction to program planners and suggest areas where more focused research is needed.
- ***Lack of setting-specific studies.*** Colleges and universities differ substantially in parameters such as size, average age, composition of the student body, geographic location, and whether they are public or private institutions, offer 2- or 4-year programs, and provide extensive on-campus student housing. Although such differences may be highly pertinent to the effectiveness of specific alcohol

interventions, virtually no existing research addresses the impact of setting-specific factors on program outcomes.

The following section of the report presents the Panel's top recommendations for colleges and universities and researchers in four major areas: environmental intervention approaches; individual- and group-focused approaches; comprehensive campus and community approaches; and program implementation. A summary of relevant research findings introduces and provides the context for each set of recommendations. For more detailed information on these approaches and the literature reviewed, please refer to the original papers listed in the References section of this report.

Creating an Environment That Discourages High-Risk Drinking

Many of the following approaches have proven effective with college-age youth and young adults who may or may not have been students. They are included here because results from numerous carefully conducted studies and community trials suggest their potential value in reducing high-risk drinking among college students.

Summary of Relevant Research

Interventions that change the broader environment increase the likelihood of long-term reductions in alcohol use and alcohol-related problems (Bangert-Drowns, 1988; Moskowitz, 1989; Perry and Kelder, 1992; Rundall and Bruvold, 1988; Tobler, 1992; Toomey and Wagenaar, 2002). Individual drinking behavior is influenced by myriad environmental factors such as public and institutional policies and practices, economic factors, messages in the media, and social norms (Wagenaar and Perry, 1995). Reductions in alcohol use and related problems may be achieved by changing such environmental factors (Edwards et al., 1994; NIAAA, 1997; Toomey et al., 1993; Toomey and Wagenaar, 2002).

The Panel found strong to moderate evidence supporting the effectiveness of the following environmental approaches.

Public Policy

Laws designed to decrease alcohol-related harm in the general population have had considerable success. Public policies designed to reduce the commercial availability of alcohol have also shown promise in some areas.

Laws Affecting Consumption and Consequences

Laws affecting consumption and related problems include minimum legal drinking age laws, lowered blood alcohol concentration limits, and administrative license revocation.

Minimum Legal Drinking Age: In 1984, the Federal Government enacted the Uniform Drinking Age Act, which withheld Federal highway funds from States that failed to increase their minimum legal drinking age (MLDA) to age 21 (King, 1987). By 1988, all States had established an MLDA of 21. Because the MLDA had been at younger ages in many States, researchers had access to "natural" experiments to assess the effect of these policy changes on alcohol consumption and related problems among youth. As a result, the MLDA is the most well-studied alcohol control policy.

The Panel reviewed 48 published studies that assessed the effects of changes in the MLDA on indicators of alcohol consumption (Wagenaar and Toomey, 2002). Together the 48 studies analyzed a total of 78 alcohol consumption outcome measures (e.g., sales figures, self-reported drinking). The preponderance of evidence suggests that higher legal drinking ages reduce alcohol consumption.

In addition, the Panel reviewed 57 published studies that assessed the effects of changes in the MLDA on indicators of drunk driving and traffic crashes (Wagenaar and Toomey, 2002). These studies analyzed a total of 102 crash outcome measures including fatal crashes, drunk-driving crashes, and self-reported driving after drinking. Over half the studies found that a higher legal drinking age is associated with decreased rates of traffic crashes. There is also some evidence that higher drinking ages are associated with lower rates of other health and social problems such as suicide, homicide, and vandalism. The research also suggests that these results have been achieved with minimal enforcement of the law overall. As might be expected, the studies showed that increased enforcement produces greater results (Wagenaar and Toomey, 2002).

It is important to note that almost all the studies reviewed were conducted among general youth and adult populations; very few high-quality, college-specific studies exist. The review commissioned by the Panel compiled all identified published studies on drinking age from 1960 to 1999, a total of 132 documents (Wagenaar and Toomey, 2002). It also includes an indepth discussion of methodological issues and a table that presents the results of each study, coded for a range of variables. Appendix 3 of this report contains a summary of the review authors' responses to arguments to lower the MLDA, which may be useful to college presidents and administrators who hear these sentiments from students, alumni, and others.

Lowered Blood Alcohol Concentration Limits: Studies also attest to the effectiveness in the general population of laws designed to reduce alcohol-related traffic crashes. For example, States that lowered legal blood alcohol concentration limits from 0.10 percent to 0.08 percent experienced a 6 percent greater post-law decline in alcohol-related fatal crashes in which drivers had blood alcohol levels of 0.10 percent or higher than States that retained the 0.10 percent standard. Estimates suggest that when all States adopt these laws, 400 to 500 fewer traffic fatalities will occur annually (Hingson et al., 2000; Shults et al., 2001; Voas et al., 2000). Laws making it illegal for drivers under 21 to drive after any drinking also have produced 9 to 24 percent declines in alcohol-related deaths and driving while intoxicated (DWI) (Hingson et al., 1994; Schults et al., 2001; Wagenaar et al., 2001).

Administrative License Revocation: In addition, legally mandated administrative license revocation for drinking-and-driving offenses and mandatory seat belt use have resulted in decreases in alcohol-related fatalities (Voas et al., 2000; Zador et al., 1989).

Restrictions on the Availability of Alcohol

A number of environmental strategies are available to reduce the social and commercial availability of alcohol to college students. The Panel's review describes these options in detail, but most have not been studied, and evidence is limited or nonexistent regarding their effectiveness for college populations (Wagenaar and Toomey, 2002). Nevertheless, a few strategies for reducing commercial availability show some evidence of success. These include increasing the price, restricting the density of retail outlets, and limiting the hours and/or days of sale.

Increasing the Price of Alcohol: With the exception of MLDA, alcohol control policies affecting price of alcohol are the next most-studied alcohol policies (Toomey and Wagenaar, 2002; Wagenaar and Toomey, 1998). Studies of price in the general population indicate that as the price of alcohol increases, consumption rates decline (Clements and Selvanathan, 1991; Gao et al., 1995; Leung and Phelps, 1993; Österberg, 1995). However, the effect on consumption varies by culture, drinking level, age group, and type of alcohol (Coate and Grossman, 1988; Cook and Tauchen, 1982; Manning et al., 1995). For example, all types of drinkers appear to be affected by price, but the heaviest drinkers may be less affected by variations in price than other consumers (Manning et al., 1995). An exception to this trend occurs among young heavy drinkers. This group, which includes college students, may be more affected

by price than heavy drinkers in the general population (Chaloupka and Wechsler, 1996; Godfrey, 1997; Kenkel, 1993; Sutton and Godfrey, 1995). Inverse relationships also exist between price of alcohol and several types of alcohol-related problems, including motor vehicle fatalities, robberies, rapes, and liver cirrhosis mortality (Cook and Moore, 1993; Cook and Tauchen, 1982; Ruhm, 1996).

Two major types of policies affect alcohol pricing: restrictions on happy hours or price promotions and placing excise taxes on alcohol. Evaluation of the impact of these policies on college populations is limited. One study of college students found that an increase in beer excise taxes had little effect on male college students' consumption (Chaloupka and Wechsler, 1996). However, the authors noted that local excise tax may be a poor proxy for price differences among campuses.

Restricting Licenses for Retail Sales of Alcohol: Studies of the density or the number of alcohol licenses per population size have found statistically significant relationships among density of alcohol outlets, consumption, and related issues such as violence, other crime, and health problems. It is important to note that many of these studies use cross-sectional designs, which are weaker than randomized, controlled trials (Gliksman and Rush, 1986; Gruenewald et al., 1993; Ornstein and Hanssens, 1985; Scribner et al., 1995; Stitt and Giacopassi, 1992). Researchers who specifically studied college students found higher levels of drinking, drinking participation, and excessive drinking among underage and older college students when a larger number of businesses were selling alcohol within one mile of campus (Chaloupka and Wechsler, 1996). Numbers of outlets may be restricted directly or indirectly through policies that make licenses more difficult to obtain, such as increasing their cost.

Limiting Hours/Days of Sale: Evaluations of the effect of restricting hours and days of sale are mixed. A few studies suggest that changes in hours may decrease rates of problem drinking, cirrhosis mortality, and some types of alcohol-related problems such as traffic crashes and violence in the general population (Duffy and Pinot de Moira, 1996; Smith, 1986). Other studies indicate no changes in problems or a shift in the timing of problems from the original closing time to the new closing hour (De Moira and Duffy, 1995). Some (but not all) studies have found that an inverse relationship may exist between the number of days of sale and alcohol use and alcohol-related problems (Ligon and Thyer, 1993; Ornstein and Hanssens, 1985; Northridge et al., 1986; Smith, 1988).

Other Approaches to Limiting Availability

Underage youth do not always have to purchase alcohol themselves in order to drink. It is readily available from other youth and young adults in party situations, and it may also be provided by older adults who condone underage drinking.

A number of policy strategies have been developed to reduce social availability. Some address locations where alcohol can be consumed legally and include community bans on drinking in public places where large numbers of youth are likely to congregate. Colleges interested in limiting social availability can employ a variety of policy options ranging from campuswide bans on any alcohol use to designating sites and occasions where alcohol can and cannot be used. When alcohol is allowed, restrictions on how it is provided can reduce the likelihood that underage persons will be served. Restrictions include keg bans or keg registration, server training, and limitations on server practices such as prohibiting self-service and limiting the number of drinks served at one time. Education and enforcement are key to all these policies and to the effectiveness of existing laws that prohibit serving alcohol to persons under age 21 (Toomey and Wagenaar, 2002).

Media Approaches

The media are another important element of the environment that can influence college student drinking. Research addresses the effects of media on drinking from two perspectives: combating the negative impact of advertising from the alcohol industry and using the media constructively to create positive change.

Alcohol Advertising Bans

A recent report by the Federal Trade Commission (Evans and Kelly, 1999) concluded that underage individuals experience significant exposure to alcohol advertising. Researchers have also found that alcohol advertising increases awareness, which affects intentions to drink (Grube, 1993; Parker, 1998). This has led some public health groups to conclude that there is a link between advertising and alcohol consumption. The Robert Wood Johnson Foundation (1999), for example, identified alcohol advertising and marketing as environmental factors that help create problems of underage and high-risk college student drinking. Although there is limited evidence indicating that alcohol advertising has an effect on consumption (Goel and Morey, 1995) and related consequences such as highway fatalities (Saffer, 1997), methodological factors explain why more such evidence has not been found (Saffer, 2002).

Some advocates have pushed for reform of advertising practices or other restrictions on alcohol advertising (DeJong and Russell, 1995). Research and experience with advertising bans are limited (Saffer, 2002), but available evidence from the general population suggests that banning alcohol advertising appears to reduce alcohol abuse in some circumstances (Ornstein and Hanssens, 1985; Saffer, 1991). Partial bans on advertising in one or two media, however, are not effective and result in increased advertising in other media (Saffer, 2002).

Counteradvertising

Evidence from tobacco advertising suggests that counteradvertising that casts doubt on the credibility of an industry and its messages can be effective (Flay, 1987; Goldman and Glantz, 1998; Hu et al., 1995; Warner, 1981).

Media Campaigns

The public health community frequently uses media campaigns to convey information to the public. However, media initiatives can also support a range of other strategic objectives, including creating a climate of support for environmental change (DeJong, 2002). Most media campaigns to prevent or reduce college student drinking have been campus-based and have used a mix of posters, flyers, e-mail, and college newspaper advertisements. Recently some regional, State, and national organizations have implemented information, social norms, and advocacy campaigns to reduce hazardous college student drinking (DeJong, 2002).

Although evaluation data on individual campaigns are limited, the body of evidence supports the following general guidelines for using the mass media effectively to address college student drinking (DeJong, 2002).

- Conduct a strategic planning process, with strategic objectives that complement an institution's larger goals and objectives. To select program goals and objectives, analyze the student drinking problems that the institution or town faces and consider a range of communication options. The typology in Appendix 2 offers some suggested options.
- Select the target audience, and define it in terms of its geographic, demographic, psychological, and problem-relevant characteristics to help create appropriately focused messages and materials. Conduct formative research with the audience to determine perceptions and message appeal.

- Develop a staged approach that recognizes the need to build toward behavior, norm, or policy change. For example, to promote personal behavior change, an audience may need to be led through a series of steps that include awareness, knowledge and beliefs, behavioral skills, self-efficacy (i.e., the conviction that individuals can master or maintain a behavior), and supports for sustaining change.
- Include a specific "call to action"; ask the audience to take a particular step.
- Select a message source or sponsor that is credible to the particular audience; be wary of choosing celebrity spokespeople, whose appeal or credibility may be fleeting.
- Choose a mix of media channels, including online resources, and provide a clear and consistent message.
- Conduct process and outcome evaluations.

Social Norms Approaches

Norms are social "facts" of life that help frame perceptions and influence behavioral choices (Festinger, 1954; Newcomb and Wilson, 1966; Sherif, 1972). Within the disciplines of social science, the term norm is used in two different but related ways. One refers to widely shared attitudes or expectations about how people in general or members of a social group ought to behave; that is, what constitutes acceptable behavior. The term also refers to the most common behavior actually exhibited in a social group; that is, the statistical average or most typical behavior of group members. The Panel considered approaches for affecting both types of norms.

Research shows that peers have the greatest influence on student norms. When peer norms appear to encourage immoderate drinking, consumption goes up (Lo, 1995; Perkins, 1986; Robinson et al., 1993). Regardless of gender, ethnic group, residential circumstance, and Greek affiliation, most students believe that their peers hold more permissive attitudes about drinking than they actually do. Likewise, they believe that their peers drink more heavily than they do (Baer and Carney, 1993; Baer et al., 1991; Perkins and Berkowitz, 1986, 1991; Perkins et al., 1999).

The strategy of communicating actual student norms to dispel myths, referred to as the "social norms approach," is receiving increased attention due to its simplicity, cost efficiency, and effects. The basic idea is to convey the truth about what the majority of students actually think and do concerning alcohol consumption. This approach gives students a positive message. It says that the norms are safety, responsibility, and moderation because these are the thoughts and behaviors of most students on virtually every campus.

Social norms interventions can publicize data about actual drinking norms in orientation programs, student newspaper ads and articles, radio programs, lectures, campus poster campaigns, and other public venues (social norms marketing). These activities can clarify the misperceptions of the general student body and of those students at high risk for alcohol-related problems (Berkowitz, 1997; Haines and Spear, 1996; Johannessen et al., 1999; Perkins, 1997, 2002). Programs can also target the most problem-prone groups (e.g., first-year students, fraternity or sorority members, athletes) for special attention. Workshops can help these students confront their own misperceptions of peer use and can facilitate discussion about student norms as identified in group assessments and campuswide studies (Barnett et al., 1996). One university, for example, targeted social norms interventions to entire fraternities and sororities (Marlatt et al., 1995).

Initial results from programs adopting an intensive social norms approach are promising. Several institutions that persistently communicated accurate norms have experienced reductions of up to 20 percent in high-risk drinking over a relatively short time (Berkowitz, 1997; DeJong and Linkenbach,

1999; Haines, 1996, 1998; Haines and Spear, 1996; Johannessen et al., 1999). Together these findings provide strong support for the potential impact of the social norms approach. Although any case report in this literature could be challenged methodologically, the results of each study are remarkably consistent.

Panel Recommendations: What Colleges and Universities Can Do Now

The Panel recommends that colleges and universities:

- Pay careful attention to environmental factors on campus and in the community. They are extremely important in influencing college drinking behaviors both positively and negatively.
- Actively enforce existing age 21 laws on campus; they help decrease alcohol consumption.
- Use social norms interventions to correct misperceptions and change drinking practices. When discussing college drinking problems, do not inadvertently reinforce the notion that hazardous drinking is the norm. Help students understand that they have the right **not** to drink and to have negative feelings about the consequences they experience due to other students' excessive drinking.
- Communicate the institution's, the community's, and the State's alcohol policies to students and parents before and after students arrive on campus.
- Be cautious about making alcohol available on campus. In the general population, increased availability is associated with increased consumption.

Panel Recommendations: What Researchers Can Do To Address Gaps in Knowledge

The Panel recommends that researchers address the following questions to fill key gaps in knowledge:

- What is the effect of banning or stringently regulating alcohol on campus? Do problems simply move off campus? How are on- and off-campus cultures affected?
- Are parental notification policies effective? If so, what are the characteristics of effective parental notification programs? At what point should parents be notified for optimal results?
- What is the most effective type of campus disciplinary system for alcohol offenses? Should campus alcohol disciplinary systems and standards be extended to students who live off campus and in what circumstances? Should infractions be handled differently for those under 21 years of age?
- How does the academic environment affect student drinking patterns? For example, would high-risk drinking be reduced if more classes were scheduled on Fridays or academic expectations were increased (e.g., reducing grade inflation, increasing difficulty of classes and requirements)?
- What is the impact of substance-free housing on alcohol problems?
- What approaches effectively reduce alcohol problems within the Greek system? Does the presence of a live-in resident advisor reduce drinking? Does delaying rush reduce alcohol problems? Do risk management efforts make a positive difference?
- What are the key environmental characteristics that influence drinking? How should environmental characteristics and environmental change be measured?
- Do alcohol-free activities and venues reduce college alcohol problems? What factors (e.g., frequency, timing, type, planning) influence effectiveness?
- How are social norms campaigns most effectively used (e.g., in combination with other activities; to set the stage for more comprehensive initiatives)?

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

Individual- and group-focused prevention and treatment approaches include a number of tested strategies. Prevention-oriented strategies include motivational enhancement techniques, cognitive-behavioral interventions, including expectancy challenges, and educational/awareness programs. Treatment-oriented strategies also include brief intervention, in addition to more intensive traditional treatment approaches. Accessible screening and recruitment programs are essential for service delivery. Hybrid approaches may combine elements of both prevention and treatment strategies to respond to the special needs of campus-based college students.

Summary of Relevant Research

There is a larger body of research on individual- and group-focused approaches in college populations than there is for environmental strategies. Collectively, individual- and group-focused interventions have proven valuable in both preventing and treating alcohol problems.

Prevention

Effective college drinking prevention programs frequently employ a multicomponent approach. For example, one study randomly assigned 348 high-risk freshman students to receive or not receive a 45-minute, in-person session that included feedback on students' personal drinking behavior and negative consequences; accurate information about alcohol-related norms on campus and comparison of their personal drinking habits to actual campus norms; and advice or information regarding drinking reduction techniques (Marlatt et al., 1998). This approach combined brief motivational enhancement with normative reeducation, skills training, and information.

Brief Motivational Enhancement

The Panel reviewed a series of related studies that provide strong support for the efficacy of brief motivational enhancement (Anderson et al., 1998; Aubrey, 1998; D'Amico and Fromme, 2000; Dimeff et al., 2000; Marlatt et al., 1998; Monti et al., 1999). Motivational enhancement is based on the theory that individuals alone are responsible for changing their drinking behavior and complying with that decision (Miller et al., 1992). Interviewers assess student alcohol consumption using a formal screening instrument. Results are scored, and students receive nonjudgmental feedback on their drinking behavior and its negative consequences. Students also receive suggestions to support their decision to change (Miller et al., 1992). Studies on motivational enhancement report significant reductions in alcohol consumption and negative consequences such as driving after drinking, riding with an intoxicated driver, traffic violations, and injuries. In addition, brief motivational enhancement techniques work in a variety of contexts, including emergency rooms, outpatient counseling centers, fraternity organizations, and with randomly selected high-risk college freshmen. Brief interventions are described in more detail below under "Treatment."

The research also suggests that in-person feedback and interpersonal interaction may not be essential to the success of brief motivational enhancement. One researcher provided computerized self-assessment and feedback with good results (Dimeff et al., 2000), and three other studies (Agostinelli et al., 1995; Walters, 2000; Walters et al., 1999) showed positive results with mailed feedback, although larger-scale studies of this approach are warranted.

Cognitive-Behavioral Skills Training

Cognitive-behavioral skills-training programs are a relatively new addition to the college drinking prevention repertoire. These programs teach skills to modify beliefs or behaviors associated with high-risk drinking, although many also incorporate information, values clarification, and/or normative reeducation components within the skills-teaching context (Garvin at al., 1990; Marcello et al., 1989). Cognitive-behavioral programs range from specific alcohol-focused skills training (including expectancy challenge procedures, blood alcohol discrimination training, or self-monitoring/self-assessment of alcohol use or problems) to general life skills training with little or no direct relationship to alcohol (such as stress-management training, time-management training, or general assertiveness skills) (Garvin et al., 1990; Murphy et al., 1986; Rohsenow et al., 1985).

Expectancy challenge programs show students that their expectations about how they and their peers will behave after drinking alcohol can affect that behavior. This strategy may include either direct experience, including the use of placebo beverages that students believe contain alcohol, or education on and discussion of expectancy issues.

One study randomly assigned heavy-drinking male students to consume beverages in a social setting and participate in activities including a social or sexual component (Darkes and Goldman, 1993). The students then attempted to guess which participants (including themselves) had consumed alcohol based on their behavior. Performance on the task was no better than chance. In addition, participants received information about how expectations of alcohol's effects can influence behavior and monitored expectancy-relevant events in their environment throughout the course of the 4-week study. The intervention comprised three 45-minute sessions.

The Panel reviewed three studies, including the one just summarized (Darkes and Goldman, 1993, 1998; Jones et al., 1995), that indicated that this technique may have considerable utility for decreasing alcohol use among college males. Of particular note is the finding that the greatest effects occurred among those who drank more heavily. Evidence suggests that the direct experience component may be important to success, but more research is needed to confirm it. More studies are also needed to replicate these findings on a larger scale and evaluate the utility of this approach with women.

Another fairly simple cognitive-behavioral intervention asks students to document their current or anticipated alcohol consumption in writing or on the computer. In one study, students recorded their daily alcohol consumption for 7 weeks (Garvin et al., 1990), while another asked students to complete a diary anticipating alcohol consumption and problems for an upcoming spring break week (Cronin, 1996). The third asked students to assess their drinking via computer three times during their freshman year (Miller, 1999). All three studies support the potential of this approach for controlling consumption and reducing negative consequences (Cronin, 1996; Garvin et al., 1990; Miller, 1999). However, due to methodological limitations, additional research is needed to confirm findings.

Ineffective Approaches Used in Isolation

For the past two decades, educational approaches have been most commonly used to combat high-risk college student drinking (Moskowitz, 1989; Ziemelis, 1998). These traditional approaches are based on the assumption that students primarily abuse alcohol because they are unaware of its health risks. The theory is that increasing knowledge about negative effects will lead to decreased use. However, there is very little evidence to suggest that knowledge deficits are related to high-risk alcohol use in this population or that a change in knowledge leads to a change in behavior (Moskowitz, 1989).

Several outcome studies evaluating traditional informational programs with college students have been conducted in the past 15 years. Most found no effect on either alcohol use or negative consequences.

Although many of these outcome studies suffer from serious methodological limitations (Larimer and Cronce, 2002), a recent meta-analysis of the college alcohol prevention literature from 1983 to 1998 concluded that typical education- and awareness-based programs (including values clarification approaches) produce, on average, only small effects on behavior (Maddock, 1999). These findings suggest that although education may be an essential component in skills training, brief motivational enhancement programs, and expectancy challenge, pursuing informational approaches in the absence of other integrated comprehensive programs is a poor use of resources on college campuses.

Treatment

Time-limited, patient-centered counseling strategies that focus on changing alcohol-related behavior have proven effective in treating college students with diagnosed alcohol problems. As with the prevention programs described previously, brief intervention techniques are also used and can be efficiently delivered in a variety of settings including student health clinics, counseling centers, and peer counseling programs. Easy to teach and easy to learn, most techniques can be effectively passed on in 1- or 2-day training programs.

Elements of Brief Intervention

The clinical elements of brief treatment intervention include the following steps:

1. Conduct an assessment: "Tell me about your drinking." "What do you think about your drinking?" "What do your parents or friends think about your drinking?" "Have you had any problems related to your alcohol use?" "Have you ever been concerned about how much you drink?"

2. Provide direct and clear feedback: "As your doctor/therapist, I am concerned about how much you drink and how it is affecting your health." "The car accident/injury/emergency room visit is a direct result of your alcohol use."

3. Establish a treatment contract through negotiation and goal setting: "You need to reduce your drinking. What do you think about cutting down to three to four drinks, two to three times per week?" "I would like you to use these diary cards to keep track of your drinking over the next two weeks. We will review them at your next visit."

4. Apply behavioral modification techniques: "Here is a list of situations when college students drink and sometimes lose control of their drinking. Let's talk about ways you can avoid these situations."

5. Ask patients to review a self-help booklet and complete a drinking diary: "I would like you to review this booklet and bring it with you at your next visit. It would be very helpful if you could complete some of the exercises in the book."

6. Set up a continuing care plan for reinforcement phone calls and clinic visits. "I would like you to schedule a followup appointment in one month so we can review your diary cards and I can answer any questions you might have. I will call you in two weeks. When is a good time to call?"

In studies testing brief intervention, the number and duration of sessions varied by trial and setting. The classic brief intervention performed by a physician or nurse usually lasted for 5 to 10 minutes and was repeated one to three times over a 6- to 8-week period. Other trials that used therapists or psychologists as the interventionist usually had 30- to 60-minute counseling sessions for one to six visits. Trials in which therapists conducted the interventions used motivational interviewing techniques

extensively. Some trials developed manuals or scripted workbooks. In others, the interventionist decided how to conduct the intervention based on a training program. Some studies used the FRAMES mnemonic as a guide for the intervention (Miller and Sanchez, 1994).

Effects of Brief Intervention

Brief intervention talk therapy delivered by primary care providers, nurses, counselors, and research staff can decrease alcohol use for at least 1 year in nondependent drinkers in primary care clinics, managed care settings, hospitals, and research settings (Bien et al., 1993; Fleming et al., 1997, 1999; Gentilello et al., 1999; Kahan et al., 1995; Marlatt et al., 1998; Ockene et al., 1999; WHO, 1996; Wilk et al., 1997). In trials with positive outcomes, reductions in alcohol use varied from 10 to 30 percent between the experimental and control groups. One trial followed patients for 48 months and found a sustained reduction in use (Fleming et al., 2000).

The effect size for men and women is similar (Fleming et al., 1997; Manwell et al., 1998; Ockene et al., 1999; Wallace et al., 1988; WHO, 1996). The effect size for persons over the age of 18 is similar for all other age groups including older adults (Fleming et al., 1997, 1999; Marlatt et al., 1998; Monti et al., 1999; Ockene et al., 1999; Wallace et al., 1988; WHO, 1996). Brief intervention appears to work in young adults and students under the age of 25 who are not alcohol dependent (Fleming et al., 2000; Marlatt et al., 1998).

Brief intervention can also reduce health care utilization in the general population (Fleming et al., 1997; Gentilello et al., 1999; Israel et al., 1996; Kristenson et al., 1983). Studies including Project TrEAT (Trial for Early Alcohol Treatment) found reductions in emergency room visits, hospital days, hospital readmissions, and physician office visits (Fleming et al., 1997; Gentilello et al., 1999; Israel et al., 1996; Kristenson et al., 1983). Brief intervention can also reduce alcohol-related harm. For example, a number of studies have found a reduction in blood levels of gamma-glutamyltransferase (GGT), an index of liver damage (Israel et al., 1996; Kristenson et al., 1983; Nilssen, 1991; Wallace et al., 1988), sick days (Chick et al., 1985; Kristenson et al., 1983), drinking and driving (Fleming et al., 2000; Gentilello et al., 1999; Monti et al., 1999), and emergency room and trauma center injury admissions (Gentilello et al., 1999).

Promising Approaches for Increasing Student Recruitment and Retention in Prevention and Treatment Programs

Despite the advances made in developing and testing efficacious prevention approaches, many students do not participate in these programs. Those who need them most appear to be least likely to use them. In fact, one study found that 46.2 percent of male drinkers and 39.57 percent of female drinkers had no interest in participating in even a minimal intervention involving informational brochures and flyers (Black and Coster, 1996).

Two approaches have been identified that may be effective in increasing student recruitment and retention:

- Using social marketing techniques to construct and advertise programs (Black and Coster, 1996; Black and Smith, 1994; Gries et al., 1995).
- Incorporating screening for and, in some cases, the intervention itself into standard practice at campus health centers and emergency rooms (Dimeff et al., 2000; Monti et al., 1999).

Panel Recommendations: What Colleges and Universities Can Do Now

The Panel recommends that colleges and universities:

- Use brief motivational interventions, such as providing feedback on students' personal drinking behavior and negative consequences, comparing individual drinking habits to actual campus norms, and teaching drinking reduction skills. Strong evidence of effectiveness supports these relatively low-cost interventions.
- Increase screening and outreach programs to identify students who could benefit from alcohol-related services.
- Train those who regularly interact with students, such as resident advisors, coaches, peers, and faculty, to identify problems and link students with intervention services and/or provide brief motivational interventions. This allows colleges and universities to improve services without adding new staff.
- Use educational interventions that provide **new** information such as describing alcohol-related programs and policies, informing students about drinking-and-driving laws, and explaining how to care for peers who show signs of alcohol poisoning. Use alcohol education in concert with other approaches, such as skills training or social norms.
- Avoid using educational efforts focused primarily on facts about alcohol and associated harm as a sole programmatic response to student drinking. They have proven to be ineffective.
- Be inclusive of varied student subpopulations. Determine and address the special needs of groups such as racial/ethnic minorities, women, athletes, Greeks, students of different ages, and gay and lesbian* students.

Panel Recommendations: What Researchers Can Do To Address Gaps in Knowledge

The Panel recommends that researchers address the following questions to fill key gaps in knowledge:

- What are the campuswide effects of implementing individual- and group-focused interventions?
- How well do these interventions work with different campus populations, including Greeks, incoming students, mandated students, adult children of alcoholics, athletes, students at various risk levels based on current alcohol practices, students living on and off campus, and members of different ethnic, religious, and cultural groups?
- How effective are student-to-student interventions?
- What are the most effective uses of computer-based technologies in college alcohol initiatives?
- Should approaches be tailored to the needs and situations of underage students versus those age 21 and older?
- What are the most effective and cost-effective ways to conduct outreach for alcohol services?
- What criteria are appropriate for diagnosing college student alcohol problems? Do they differ from the general population criteria used in currently available instruments?
- How well do pilot programs work when taken to scale on different campuses?

* Term used in broad sense; includes students who are bisexual, transgendered, and questioning as well as gay and lesbian.

Comprehensive College-Community Interventions

Comprehensive college-community interventions are multicomponent programs that colleges and communities conduct collaboratively in an effort to reduce high-risk drinking and its consequences. College students are not usually the sole focus of these programs, but components within the program target them specifically. Students also benefit from the broader, community-wide aspects of the program designed to reduce such behaviors as drinking and driving and sales to minors.

Summary of Relevant Research

A number of factors support the development of comprehensive college-community interventions to address college drinking problems. First, this approach reframes the issue as a community problem, not simply a college problem. It brings together the range of players needed to address the problem and sets the stage for cooperative action. Second, such efforts appear to offer a high-yield, low-cost approach for institutions. Some joint activities require few university resources but result in policy and enforcement reforms that alter the drinking environment. Third, such alliances can improve town-gown relationships overall, improving, for example, networking between student affairs offices and local police or other agencies related to student concerns and enhancing opportunities for faculty researchers to conduct needed studies.

Comprehensive community interventions to reduce health problems typically involve several governmental agencies as well as private citizens and organizations. Most use multiple program strategies such as education programs, media advocacy, community organization and mobilization, and environmental policy changes or heightened enforcement of existing policies (Hingson and Howland, 2002).

Although there is no research evidence to support collaborations among colleges and universities and community groups aimed at college drinking (Hingson and Howland, 2002), community coalitions have had positive effects on reducing alcohol problems in the general population. In fact, efforts to date have had the greatest impact on youth, reinforcing the potential of campus-community coalitions to reduce college-age drinking problems. In addition, the National Academy of Sciences has recommended this approach for reducing alcohol-related health problems (IOM, 1989) based on its success in addressing other health issues.

A number of comprehensive community efforts have been designed to reduce alcohol and other substance use among underaged youth, including college students, and adults (Chou et al., 1998; Hingson et al., 1996; Holder, 1997a,b; Holder and Treno, 1997; Pentz et al., 1989; Perry et al., 1996; Saltz and Stangletta, 1997; Wagenaar et al., 2000a,b). These interventions have resulted in reductions in underage alcohol use and alcohol-related problems, including drunk driving and alcohol-related motor vehicle fatalities.

Community Trials Program

The Community Trials Program (Grube, 1997; Holder et al., 1997a,b; 2000; Holder and Reynolds, 1997; Holder and Treno, 1997; Reynolds et al., 1997; Saltz and Stangletta, 1997; Treno and Holder, 1997; Voas et al., 1997) was a 5-year initiative designed to reduce alcohol-involved injuries and death in three communities. The theoretical basis of this program was to alter individual behavior by changing the environmental, social, and structural contexts of alcohol use.

Program Components

The Community Trials Program had five mutually reinforcing components:

1. Community mobilization addressed support for public policy interventions by increasing general awareness, knowledge, and concern about alcohol-related trauma. Program initiatives were jointly planned by project organizers and local residents and implemented by the residents.

2. The responsible beverage service (RBS) component sought to reduce sales to intoxicated patrons and increase enforcement of local alcohol laws by working with restaurants, bar and hotel associations, beverage wholesalers, the Alcohol Beverage Control Commission, and local law enforcement.

3. A component to decrease DWI offenses sought to increase the number of DWI arrests by a combination of special officer training, deployment of passive alcohol sensors, and the use of driving under the influence (DUI) checkpoints. News coverage publicized these activities.

4. A component directed toward underage drinking sought to reduce alcohol sales to minors by enforcement of underage sales laws; training of sales clerks, owners, and managers to prevent sales of alcohol to minors; and advocacy to bring media attention to the issue of underage drinking.

5. Local zoning and other municipal powers that determine alcohol outlet density were used to reduce availability of alcohol.

Program Outcomes

This multicomponent approach was tested in a quasi-experimental design in three matched pairs of communities and resulted in a 43 percent decline in alcohol-related assault admissions. Although not all measures indicated effects in the predicted direction, there was strong support for the efficacy of a coordinated, comprehensive community-based intervention to reduce high-risk alcohol consumption and alcohol-related trauma.

Intermediate outcomes also indicated success, including decreases in alcohol outlet sales to underage-appearing pseudopatrons without identification. Local regulations of alcohol outlets and public sites for drinking were changed in all three experimental communities. Changes in the Northern California intervention city were typical. The city council implemented a proposal to eliminate special land use conditions for alcohol outlets, adopted restrictions on the availability of alcohol in city parks, denied a new alcohol license, revoked a retailer's conditional use permit because of liquor sales violations, and instituted a citywide ordinance requiring new owners of off- and onsite alcohol outlets to complete a responsible server course. In addition, the Hispanic Chamber of Commerce voted to make its annual festival alcohol free.

The DWI reduction component resulted in an increase in news coverage of DWI, additional police officer enforcement, greater use of Breathalyzer equipment, and increased public perceptions of risk of arrest for DWI. Alcohol-related crash involvement as measured by single vehicle night crashes declined 10 to 11 percent more among program than comparison communities.

Communities Mobilizing for Change on Alcohol

Communities Mobilizing for Change on Alcohol (CMCA) was a 6-year project designed to test creative approaches to reduction of drinking by young people. The project was implemented in seven small to midsized communities in Minnesota and Wisconsin in 1993. Eight additional communities in the region served as a control group. CMCA emphasized environmental factors that affect the supply of alcohol to youth and used a community organization approach to achieve policy changes among local institutions. Adults and young people in each community identified and promoted a variety of issues designed to change the local environment in ways that made alcohol more difficult to obtain and made underage drinking less acceptable within the local culture (Wagenaar et al., 1999, 2000a,b).

Program Objectives

Specific objectives were to change community policies and procedures to reduce:

- Access to alcohol by underage youth whether through retail sales to youth or purchase/provision by parents, other adults, or older youth;
- Number and proportion of alcohol outlets selling to underage individuals;
- Youth and adult support for or tolerance of underage purchase and consumption of alcohol;
- Prevalence, quantity, and frequency of alcohol consumption among youths 15 to 20 years of age; and
- Incidence of alcohol-related health and social problems among youths 15 to 20 years of age (Wagenaar and Perry, 1995).

Program Outcomes

Retailers in intervention communities increased age-identification checking and reduced sales to minors, especially in on-sale establishments. Young people—ages 18 to 20—reduced their propensity to provide alcohol to other teens and were less likely to try to buy alcohol, drink in a bar, or consume alcohol. However, there were no effects on drinking by high school seniors (Wagenaar et al., 1999, 2000a).

From the perspective of this report, it is encouraging that the intervention had its greatest effects on college-age youth. Additional analyses of arrest and traffic crash data indicated that DUI violations declined in the intervention communities. Again, this effect was most marked for college-age youth and only approached significance for youth ages 15 to 17. There were no differences in arrests for disorderly conduct or traffic crashes for either age group. Collectively, findings from the CMCA project indicate that a community-organization approach to limiting youth access to alcohol can be effective for college-age youth, 18 to 20 years old (Wagenaar et al., 1999, 2000a,b).

Massachusetts Saving Lives Program

The Massachusetts Saving Lives Program (Hingson et al., 1996) also illustrates combinations of approaches that communities have used successfully to combat risky drinking and enhance public safety.

Program Components

To reduce drunk driving and speeding, communities introduced media campaigns, drunk driving checkpoints, business information programs, speeding and drunk driving awareness days, speed watch telephone hotlines, police training, high school peer-led education, Students Against Drunk Driving chapters, college prevention programs, alcohol-free prom nights, beer keg registration, and increased liquor outlet surveillance by police to reduce underage alcohol purchase. To increase pedestrian safety and safety belt use, program communities conducted media campaigns and police checkpoints, posted

crosswalk signs warning motorists of fines for failure to yield to pedestrians, added crosswalk guards, and offered preschool education programs and training for hospital and prenatal staff. Coordinators engaged in numerous media advocacy activities designed to help local news outlets move beyond reporting only the specifics of motor vehicle crash injuries and deaths to explaining trends in local traffic safety problems and strategies communities were implementing to reduce traffic injury and death (Hingson et al., 1996).

Program Outcomes

During the 5 years of the program, the proportion of drivers under age 20 who reported driving after drinking in random-digit dial telephone surveys declined from 19 percent during the final year of the program to 9 percent in subsequent years. The proportion of vehicles observed speeding through use of radar from unmarked cars was cut in half, and safety belt use increased from 22 percent to 29 percent of motor vehicle occupants. Differences between intervention and comparison communities were statistically significant. Alcohol-related traffic deaths declined 42 percent more in Saving Lives cities relative to the rest of the State during the 5 years of the program as compared to the previous 5 years. This decline was also seen among 16- to 25-year-olds, many of whom may have been college students (Hingson et al., 1996).

Other Comprehensive Community Interventions

In addition to reducing underage alcohol consumption, drunk driving, and their consequences, comprehensive community interventions have also reduced smoking and risky sexual behaviors among adolescent and college-age populations (CDC, 1999; COMMIT Research Group, 1995; Forster et al., 1998; Kegeles et al., 1998; Vincent, 1987). Research shows that combining environmental and institutional change with health education theory-based programs designed to change behavior and promote community ownership of programs enhances success (Hingson and Howland, 2002). Reviews of comprehensive programs (Wagenaar et al., 1999) have also identified important components of coalition development. They include:

- Assessing community interests,
- Building a core base of support in the community,
- Expanding the base,
- Developing a plan of action,
- Implementing the plan,
- Maintaining the effort and institutionalizing it, and
- Evaluating and disseminating results.

Panel Recommendations: What Colleges and Universities Can Do Now

The Panel recommends that colleges and universities:

- Create and/or participate in joint college-community interventions to reduce student drinking problems. Community coalitions have been effective in addressing alcohol and other health issues, although there has been no research on campus-community activities to reduce high-risk drinking and related problems.
- Create a task force or coalition representing relevant constituencies on campus (including students) and in the community (including local businesses) to develop and monitor college drinking initiatives.

- Plan coalition activities strategically, including setting measurable objectives, establishing target timelines, clearly defining member responsibilities, and collecting and evaluating data on both the process of working together and the results of the interaction.

Panel Recommendations: What Researchers Can Do To Fill Gaps in Knowledge

The Panel recommends that researchers address the following questions to fill key gaps in knowledge:

- Are comprehensive college-community interventions to reduce high-risk college drinking effective? What is the most effective mix of policy and program elements? What are the assets and liabilities for colleges and communities?
- Is it more effective to focus such efforts on drinking practices or on the health and social problems high-risk drinkers cause for themselves and others?
- Where should decision-making responsibility be focused: in city government, the college and university, another group or institution, or a combination of players?
- What are the best strategies for mobilizing and optimizing the effectiveness of campus-community coalitions?
- Do effects of college-focused programs extend to others in the community?
- What is the best way to enforce community alcohol-related ordinances?
- How can the results of alcohol research be effectively disseminated to community audiences such as chiefs of police, parents, and legislators?
- How effective are State-level coalitions that support individual campus-community collaborations?

Managing Program Implementation Effectively

Organizational factors, setting-specific issues, and the need to track program progress and evaluate results pose genuine challenges for campus-based programs. Addressing each, however, is essential to develop and sustain efforts that are relevant and effective.

Summary of Relevant Research

Sound program implementation is as important to success as using effective interventions. Although there is little research on approaches to college drinking program implementation, the organizational change literature provides a valid framework for addressing implementation issues (Mara, 2000). This construct highlights factors within the organizational environment that can either support or hinder college alcohol problem prevention or other change efforts, including leadership, strategy, structure, shared values, staff and skills, (management) style, and systems. Business and management research shows that comprehensively addressing all relevant factors and aligning them strategically to support a change is important to success (Carr et al., 1996). This emphasis on strategic change requires a careful, inclusive planning process and data collection and evaluation to monitor and improve programs and policies.

Organizational Factors

A review commissioned by the Panel describes the recent experiences of college and university presidents in responding to organizational change and other implementation issues (Mara, 2000). It also includes insights from experts in organizational change. All agree that involving students in program development and implementation is important for success. Other key potential partners are college and university faculty members, who are in a unique position to identify and help students with alcohol-related problems. Although faculty members have not typically been much involved in prevention, The Higher Education Center for Alcohol and Other Drug Prevention suggests eight ways that they could participate (Higher Education Center, 1998), including:

1. Helping initiate and support the development of multifaceted prevention programs,
2. Using alcohol-related campus incidents as teachable moments,
3. Speaking out and fostering debate on alcohol-related issues,
4. Incorporating alcohol issues into courses,
5. Developing specific courses or projects on alcohol issues,
6. Teaching related interpersonal and intrapersonal skills,
7. Monitoring how they personally discuss alcohol issues and the examples they set socially, and
8. Working on campus and joint campus-community coalitions.

Setting-Specific Issues

In addition to addressing organizational factors, program implementation also involves attending to the setting-specific issues that are unique to each college or university and working with diverse on- and off-campus constituencies. Some institutions may collaborate with their communities in developing and implementing programs. In Ohio, for example, campuses have been involved in a statewide initiative launched by Ohio Parents for Drug Free Youth. This effort developed a prevention infrastructure built around campus-community coalitions, increased the range of prevention activities on campus, and focused attention on comprehensive environmental approaches (Deucher et al., in press).

Evaluation

Evaluation is another critical aspect of program implementation (Saltz and DeJong, 2002), with benefits that include:

- Increasing the likelihood of program effectiveness,
- Enabling program improvement,
- Encouraging a strategic approach rather than ad hoc activities,
- Focusing the program on defined endpoints and objectives,
- Optimizing the use of college or university resources,
- Enhancing program credibility, and
- Contributing to the overall knowledge base about what works in reducing high-risk drinking among college students.

Despite evaluation's value, researchers who reviewed college alcohol interventions implemented during the previous two decades identified only a handful of programs with any appreciable evaluation (Hingson et al., 1998). Nonetheless, college and university administrators, State boards, and legislatures

governing multiple campuses are in a particularly strong position to encourage the development of evaluation activities on their campuses (Saltz and DeJong, 2002) by:

- Insisting that prevention planning be guided by clearly articulated goals, objectives, and activities, all informed by research;
- Providing resources and incentives for systematically collecting data and conducting evaluation; and
- Fostering a supportive atmosphere where evaluation is used as a learning tool, not as a weapon to threaten programs or positions.

The paper on planning and evaluation commissioned by the Task Force provides step-by-step guidance for the integrated processes of program and evaluation planning (Saltz and DeJong, 2002). The authors provide examples that illustrate how both programs and evaluations are strengthened when programs are based on explicit theoretical frameworks with logic models that relate their strategies to measurable objectives.

Panel Recommendations: What Colleges and Universities Can Do Now

The Panel recommends that colleges and universities:

- Be critical consumers of alcohol prevention strategies. Use programs with demonstrated effectiveness, such as those recommended in this report.
- Take a strategic, outcome-driven approach to planning that reflects the campus situation and recognizes the need for the alignment of alcohol programs and policies with other aspects of institutional policy. Evaluate policies and programs and share the results with other colleges and universities.
- Recognize that college student drinking prevention programs require a long-term (10- to15-year) commitment. Set realistic objectives for change that are based on institutional assessment and national experience.
- Establish a system for collecting data regularly on alcohol consumption and related problems. Report information objectively on campus and in the community, and update progress regularly.
- Adopt and integrate complementary approaches, rather than focusing only on one. For example, when combined, social norms and policy enforcement efforts can enhance each other.
- Involve students in developing and implementing activities to reduce high-risk drinking.
- Involve a broad base of campus and community groups in prevention efforts, and reward students and others for supporting these programs.
- Use social marketing approaches to create and market programs to students.
- Encourage presidents, administrators, and other campus leaders to communicate the message that reducing harmful alcohol use is an institutional priority.
- Have alcohol prevention interventions in place before freshmen arrive in the fall and sponsor related activities frequently during the first weeks of the academic year. Train those who conduct prospective student tours and interviews to explain the institution's alcohol policies and desired norms.
- Help move the field forward. Be willing to participate in alcohol-related research programs, for example, or to become a State or national policy advocate on college drinking issues.

Panel Recommendations: What Researchers Can Do To Fill Gaps in Knowledge

The Panel recommends that researchers address the following questions to fill key gaps in knowledge:

- What planning structure or process is most effective in developing campus alcohol policies and programs?
- What is the relative effectiveness of different accountability structures for managing college alcohol programs?
- What are the costs and effects of alcohol prevention interventions including campus-based and comprehensive campus-community efforts? How can programs be made more cost-effective?
- Which alcohol policies and programs most benefit the college and university in terms of student recruitment, student quality and academic performance, student diversity, student retention, faculty behaviors, fundraising, and alumni relations?
- What are the most effective strategies for involving presidents, administrators, faculty, students, other staff, and boards of directors in alcohol prevention programs?
- Is it effective to make prospective students aware of alcohol policies during the marketing or admissions process?
- What are the most effective ways of engaging, optimizing, and maintaining the involvement of different student subgroups, including ethnic and racial minorities?
- How can higher education and secondary education work together on alcohol issues, including the transition from high school to college?

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Papers Commissioned for the Panel on Prevention and Treatment

A Typology for Campus-Based Alcohol Prevention: Moving toward Environmental Management Strategies
William DeJong, Ph.D., Professor, Boston University School of Education's Higher Education Center for Alcohol and Other Drug Prevention, and Linda Langford, Sc.D., Associate Director of Evaluation and Assessment, U.S. Department of Education's Higher Education Center for Alcohol and Other Drug Prevention

Identification, Prevention, and Treatment: A Review of Individual-Focused Strategies to Reduce Problematic Alcohol Consumption by College Students
Mary Larimer, Ph.D., Assistant Professor of Psychiatry and Behavioral Sciences, Adjunct Assistant Professor of Psychology, Associate Director, Addictive Behaviors Research Center, University of Washington, and Jessica M. Cronce, B.S., Research Coordinator, Addictive Behaviors Research Center, Department of Psychology, University of Washington

Social Norms and the Prevention of Alcohol Misuse in Collegiate Contexts
H. Wesley Perkins, Ph.D., Professor of Sociology, Department of Anthropology and Sociology, Hobart and William Smith Colleges

Alcohol Advertising and Youth
Henry Saffer, Ph.D., Professor of Economics, Kean University, and Research Associate, National Bureau of Economic Research

The Role of Mass Media Campaigns in Reducing High-Risk Drinking among College Students
William DeJong, Ph.D., Professor, Boston University School of Public Health, and Director, U.S. Department of Education's Higher Education Center for Alcohol and Other Drug Prevention

Environmental Policies to Reduce College Drinking: Options and Research Findings
Traci L. Toomey, Ph.D., Assistant Professor, School of Public Health, Division of Epidemiology, University of Minnesota, and Alexander C. Wagenaar, Ph.D., Professor and Director, Alcohol Epidemiology Program, School of Public Health, Division of Epidemiology, University of Minnesota

Effects of Minimum Drinking Age Laws: Review and Analyses of the Literature from 1960 to 2000
Alexander C. Wagenaar, Ph.D., Professor and Director, Alcohol Epidemiology Program, School of Public Health, Division of Epidemiology, University of Minnesota, and Traci I. Toomey, Ph.D., Assistant Professor, School of Public Health, Division of Epidemiology, University of Minnesota

Compresenhensive Community Interentions to Promote Health: Implications for College-Age Drinking Problems
Ralph Hingson, Sc.D., Professor and Chair, Social and Behavioral Sciences Department, Boston University School of Public Health, and Jonathan Howland, Ph.D., M.P.H., Professor and Chair, Social and Behavioral Sciences Department, Boston University School of Public Health

The Role of Evaluation in Prevention of College Student Drinking Problems
Robert F. Saltz, Ph.D., Associate Director and Senior Research Scientist, Prevention Research Center, Berkeley, CA

View from the President's Office: The Leadership of Change
Joy R. Mara, M.A., Mara Communications

Joint Panel Papers

The Student Perspective on Alcohol Abuse
Peggy Eastman, Author and Journalist

Magnitude of Alcohol-Related Mortality and Morbidity among U.S. College Students Ages 18–24
Ralph Hingson, Sc.D., Professor and Chair, Social and Behavioral Sciences Department, Boston University School of Public Health; Timothy Heeren, Ph.D., Assistant Professor, Biostatistics Department, Boston University School of Public Health; Ronda Zakocs, Ph.D., Assistant Professor, Department of Social and Behavioral Sciences, Boston University School of Public Health; Andrea Kopsteain, Ph.D., Chief Program Evaluation Branch, Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration; and Henry Wechsler, Ph.D., Lecturer and Director of College Alcohol Studies, Department of Health and Social Behavior, Harvard School of Public Health

Appendix 1
Additional Panel Recommendations

APPENDIX 1

ADDITIONAL PANEL RECOMMENDATIONS

Recommendations to NIAAA and Other Potential Program Funders

- Provide direction for the research field through initiatives and publications.
- Consider new initiatives, mechanisms, and procedures to encourage and support needed research that may not conform to a typical National Institutes of Health investigator-initiated research format.
- Provide technical assistance, remove barriers, and offer incentives to facilitate college and university participation in alcohol research studies.
- Increase collaboration with other Federal agencies for joint funding in this field.
- Invest resources in developing a model alcohol-related data collection system for campuses nationwide. Maintain a permanent database of this information.
- Work with the National Highway Traffic Safety Administration to include data indicators needed to quantify college alcohol problems in accident reports. Indicators include whether subjects are enrolled in college, where, and at what level.
- Conduct an annual press briefing to highlight progress made and resources needed to continue addressing college alcohol issues.
- Open dialogue and seek partnerships with national organizations to fulfill the recommendations of this report. Such groups include other Federal agencies, States, the national Interfraternity Council and Pan-Hellenic Council, boards of individual Greek organizations, national student organizations, industry, athletic conferences, high schools, and groups representing college and university presidents, boards of trustees, and administrators. Give such a coalition a reason to interact, such as working together to develop the model for national data collection.
- Create and disseminate short publications to various campus audiences (including students) that synthesize current research findings and identify what the college community can do about the problem.

Recommendations to Other Interested National Organizations

- Provide venues (e.g., at annual meetings) for researchers to share information on this issue.
- Encourage colleges and universities to enact policies and programs that research deems effective.
- Help educate the press about campus alcohol issues, including actual levels of college drinking and the progress being made in reducing high-risk behaviors and their consequences.
- Consider ways in which existing jobs and organizational elements could be reconceptualized to include a focus on college alcohol issues.

Recommendations to Researchers: Information Gaps and Research Needs

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

- What are the most effective individual-focused approaches for institutions of different sizes and types, with different student populations, and different ethnic and age mixes among students?
- What are the most important components in individual-focused interventions and what mediates efficacy?
- What are the most effective ways to increase referrals to campus intervention programs (e.g., use of peers or campus judicial and enforcement processes; media strategies; routine screening; mandated referrals; training to increase referrals by faculty, staff, and students)?
- Is it effective to train students to help peers prevent or reduce high-risk drinking?

Creating an Environment That Discourages High-Risk Drinking

Overall

- What are the most effective environmental approaches for different types of institutions?
- What is the effect of combining different policies and combining environmental strategies with individual-focused strategies? What is the best sequence for implementing the elements of a combined approach? What balance among interventions produces the best outcomes?
- How can campuses best balance their policy orientation with regard to enforcement of underage drinking laws and promotion of responsible drinking?
- Which alcohol policies are most effective in reducing alcohol-related problems? For which outcomes and populations are these policies effective?
- What are the most effective ways to educate faculty members and involve them in campus alcohol prevention efforts?

Social Norms

- How accurate are an individual's perceptions of alcohol norms for different types of referent groups such as close friends, people in the same living or social unit or the general student body? How do these perceptions affect an individual's alcohol-related norms?
- How do social norms affect a student's view of "problem" drinking?
- Does publicizing actual rates of drinking on campus and consequences of hazardous drinking affect norms and consumption?
- Which strategies are most effective in reducing misperceptions about student drinking norms (e.g., print media, curriculum infusion, electronic media, and interpersonal workshops)?
- What are faculty norms and perceptions related to drinking among themselves and among students? How do faculty drinking patterns affect student behaviors?
- What are alumni norms related to student drinking? Do alumni have any influence on student norms or the norms of other campus groups?

- Are social norms interventions more effective on some types of campuses than others? Does type of social environment (e.g., a cohesive student body, social leadership roles by certain groups, predominantly minority campuses, expensive private schools, commuter schools) influence the effectiveness of social norms approaches?
- Does a school's reputation as a "top party school" affect norms and behavior?

Minimum Legal Drinking Age

- Does MLDA affect alcohol consumption and related problems in college student populations?
- How is MLDA enforced on and around campuses?
- What barriers hinder increasing enforcement on campus?
- How does increased MLDA enforcement affect various negative consequences of high-risk college student drinking?

Media Approaches

- How do various media strategies affect college student knowledge, attitudes, and behavior with respect to high-risk drinking?
- Is counteradvertising effective in influencing college student norms or behaviors?
- Which media work best for alcohol-related counter advertising aimed at affecting the college student population?
- Do campuswide advertising bans contribute to reducing alcohol problems?
- Are media advocacy campaigns effective for college audiences? Are they effective in enhancing other environmental efforts?

Managing Program Implementation Effectively

- What factors make policies and strategies more effective (e.g., enforcement, media coverage, the methods used to develop and implement policies, thoroughness of implementation, institutional characteristics)?
- What is the most effective role for students to play in formulating and implementing policies and programs? Are alcohol policies more effective if they are designed with student input or by administrators alone? Does this vary by type of policy?

Appendix 2
Typology: A Theoretical Framework for Alcohol Prevention Initiatives

APPENDIX 2

TYPOLOGY: A THEORETICAL FRAMEWORK FOR ALCOHOL PREVENTION INITIATIVES

The U.S. Department of Education's Higher Education Center for Alcohol and Other Drug Prevention has developed a typology for classifying activities and policies designed to affect college drinking at various levels (DeJong et al., 1998). The classification schema includes four types of strategic intervention: (1) changing people's knowledge, attitudes, and behavioral intentions regarding alcohol consumption; (2) eliminating or modifying environmental factors that contribute to the problem; (3) protecting students from the short-term consequences of alcohol consumption ("health protection" or "harm reduction" strategies); and (4) intervening with and treating students who are addicted to alcohol or otherwise show evidence of problem drinking. The representation in Table 1 captures the idea that many areas of strategic intervention can be pursued at multiple levels.

Table 1. Typology Matrix for Mapping Campus and Community Prevention Efforts

Areas of Strategic Intervention	Individual	Group	Institution	Community	Policy
Knowledge, Attitudes, Behavioral Intentions					
Educational/Awareness					
Cognitive/Behavioral					
Motivational Enhancement					
Environmental Change					
Activity Options					
Normative Environment					
Alcohol Availability					
Policy/Law Enforcement					
Alcohol Promotion					
Health Protection					
Intervention/Treatment					

Adapted from: DeJong and Langford, 2002

In addition, research in the general population shows that using multiple interventions aimed at various levels increases the likelihood of long-term reductions in alcohol use and alcohol-related problems (Bangert-Drowns, 1988; Moskowitz, 1989; Rundall and Bruvold, 1988; Tobler, 1992; Perry and Kelder, 1992). Table 1 shows the important interrelationships among alcohol strategies. A broad-based approach reflects the finding from general population studies that risk for alcohol problems is a continuum, and targeting only alcohol-dependent individuals or those who have had problems in the past is not sufficient. In fact, the majority of alcohol-related deaths, disability, and damage is attributable to moderate drinkers who engage in occasional risky drinking, not those who are dependent on alcohol (Kreitman, 1986; Lemmons, 1995; Saunders, 1959).

Selected Examples of Complementary Interventions

Three examples illustrate how interventions from various parts of the typology can be combined to reinforce and complement one another (DeJong and Langford, 2002).

1. **Targeting knowledge, attitudes, and behavioral intentions at both the individual and group levels.** At the individual level such activities may work to increase student awareness of alcohol-related problems, change individual attitudes and beliefs, and foster each student's determination to avoid high-risk drinking and to intervene to protect other students whose alcohol use has put them in danger. Typical activities may include educational efforts during freshman orientation, alcohol awareness weeks and other special events, and curriculum infusion, where faculty members introduce alcohol-related facts and issues into regular academic courses (Ryan and DeJong, 1998). By comparison, when this type of strategic intervention focuses on the group, it often uses peer-to-peer communication. The largest such program, the BACCHUS/GAMMA Peer Education Network, trains volunteer student leaders to implement a variety of awareness and educational programs and to serve as role models for other students to emulate.
2. **Sponsoring a health protection initiative at the community, group, and individual levels.** A local community could decide to establish a "safe rides" program. At the group level, fraternity and sorority chapters could vote to require members to sign a pledge not to drink and drive and to use the safe rides program instead. At the individual level, a campus-based media campaign (environmental strategy) could encourage individual students to use the new service.
3. **Conducting a policy enforcement intervention at the State, community, college, group, and individual levels.** Increasing the observance and enforcement of the minimum drinking age law might involve action at the State level, such as the Alcohol Control Commission increasing the number of decoy (or "sting") operations at local bars and restaurants. At the community level, local police could implement a protocol for notifying college officials of all alcohol-related incidents involving students. At the college itself, the campus pub could require that all alcohol servers complete a training course in responsible beverage service. At the group level, the college might require that residential groups and special event planners provide adequate controls to prevent alcohol service to underage students. Finally, at the individual level, a media campaign could publicize these new policies, the stepped-up enforcement efforts, and the consequences of violating the law.

Subcategories of Environmental Change

The Center's typology also divides the environmental change category into five subcategories of strategic interventions: (1) offer and promote social, recreational, extracurricular, and public service options that do not include alcohol and other drugs; (2) create a social, academic, and residential environment that supports health-promoting norms; (3) limit alcohol availability both on and off campus; (4) develop and enforce campus policies and local, State, and Federal laws; and (5) restrict marketing and promotion of alcoholic beverages both on and off campus.

Each of these subcategories involves a wide range of possible strategic interventions. For example, a social norms campaign, which operates primarily at the group level, could be enhanced by an alcohol screening program that gives individualized feedback to students on their drinking compared to other students on campus (Marlatt et al., 1998). Or community leaders might foster the creation of new businesses that can provide alcohol-free recreational options for students. Simultaneously, college officials might work with local school boards to plan and conduct complementary social norms activities in secondary schools.

Appendix 3
Responses to Arguments Against the Minimum Legal Drinking Age

APPENDIX 3

RESPONSES TO ARGUMENTS AGAINST THE MINIMUM LEGAL DRINKING AGE

Despite an abundance of research demonstrating the effectiveness of the age 21 MLDA in reducing youth drinking and alcohol-related problems, a few States are again considering lowering their legal age limits for drinking. Many issues and arguments heard decades ago are resurfacing, and many are similar to arguments college administrators hear against campus policies to discourage high-risk alcohol use. Following is a summary of possible responses to these arguments, suggested in the research review on MLDA commissioned by the Panel (Wagenaar and Toomey, 2002).

Issue: "Establishing a legal drinking age of 21 is unconstitutional age discrimination."
Response: This question has been treated in detail in two court cases, one in Michigan, the other in Louisiana. In both instances, the courts upheld the constitutionality of the laws, based in part on the demonstrated value of age 21 laws in preventing traffic crashes.

Issue: "If I'm old enough to go to war, I should be old enough to drink."
Response: Many rights have different ages of initiation. A person can obtain a hunting license at age 12, driver's license at age 16, vote and serve in the military at 18, serve in the U.S. House of Representatives at age 25 and in the U.S. Senate at age 30, and run for President at age 35. Other rights that are regulated include the sale and use of tobacco and legal consent for sexual intercourse and marriage. The minimum age for initiation is based on the specific behaviors involved and must take into account the dangers and benefits of that behavior at a given age. The age 21 policy for alcohol takes into account the fact that underage drinking is related to numerous serious health problems, including injuries and death resulting from car crashes, suicide, homicide, assault, drowning, and recreational injuries. In fact, the leading cause of death among teens is car crashes, and alcohol is involved in approximately a third of these deaths.

Issue: "Europeans let their teens drink from an early age, yet they don't have the alcohol-related problems we do. What we need are fewer restrictions, not more."
Response: The idea that Europeans do not have alcohol-related problems is a myth. European youth may be at less risk of traffic crashes since youth drive less frequently in Europe than in the United States. However, European countries have similar or higher rates of other alcohol-related problems compared to those in the United States.

Issue: "Lower rates of alcohol-related crashes among 19- to 20-year-olds aren't related to the age 21 policy, but rather they're related to increased drinking-driving education efforts, tougher enforcement, and tougher drunk-driving penalties."
Response: When the age 21 restriction was initiated, alcohol-involved highway crashes declined immediately (i.e., starting the next month) among the 18- to 20-year-old population. Careful research has shown the decline was not due to DUI enforcement and tougher DUI penalties, but is a direct result of the legal drinking age. Studies have also shown that education alone is not effective in reducing youth drinking. Achieving long-term reductions in youth drinking problems requires an environmental change so that alcohol is less accessible to teens.

Issue: "Making it illegal to drink until 21 just increases the desire for the 'forbidden fruit.' Then, when students turn 21, they'll drink even more."
Response: Actually, the opposite is true. Early legal access to alcohol is associated with higher rates of drinking as an adult.

Issue: "Who will pay for enforcement of these laws? The age 21 law is too expensive."
Response: We already pay large portions of our tax dollars for problems resulting from alcohol. For example, in Minnesota, cities use approximately one-third of their police budgets to deal with alcohol-related problems; the U.S. pays more than $10 billion annually just for the costs associated with drunk driving. The higher drinking age saves money by resulting in fewer alcohol-related health problems, fewer alcohol-related injuries, and less vandalism.

Issue: "We drank when we were young and we grew out of it. It's just a phase that all students go through."
Response: Unfortunately, many teens will not "grow out of it." Studies indicate that youth who start drinking before they are 21 are more likely to drink heavily later in life. Those who do not drink until age 21 tend to drink less as adults. Teens who drink are also more likely to try other illegal drugs and to become victims of crime. If teen drinking is accepted as normal behavior, youth will continue to experience car crashes, other injuries, early unprotected sex, and other problems commonly associated with drinking.

Issue: "If students can't get alcohol, they'll just switch to other, perhaps even more dangerous, drugs."
Response: Research shows that the opposite is true; teens who drink and/or smoke are more likely to move on to use other drugs. Preventing youth from using alcohol and tobacco reduces the chance that they will try other illegal drugs. Moreover, when the drinking age was raised to 21, and teen drinking declined, there was no evidence of a compensatory increase in other drug use.

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